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09/870,252	05/29/2001	Tomasz J. Goldman	003829.P005	8834

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EXAMINER

KADING, JOSHUA A

ART UNIT PAPER NUMBER

2661

DATE MAILED: 12/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/870,252

Applicant(s)

GOLDMAN ET AL.

Examiner

Joshua Kading

Art Unit

2661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☒ Claim(s) 4, 6, 10, 16, 18, and 27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date: ____.  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____.   | 6) <input type="checkbox"/> Other: ____.                                    |

## **DETAILED ACTION**

### ***Specification***

The disclosure is objected to because of the following informalities: The term "cylic" appears on page 7, line 13 in the Specification. It is believed applicant intended  
5 to use the term "cyclic" instead of "cylic." Therefore, "cylic" should be changed to --cyclic--.

Appropriate correction is required.

### ***Claim Objections***

10 Claims 4, 6, 10, 16, 18, and 27 are objected to because of the following informalities:

Claim 4, line 2 and claim 16, line 3 state, "which flows of the plurality of flows exceeds their..." The word "exceeds" should be replaced with --exceed--.

15 Claim 6, lines 2-3 and claim 18, lines 3-4 state, "computing a reduction factor based on aggregate over utilization of the processor." There is no antecedent basis for "the processor." Therefore, claim 6, line 2-3 and claim 18, lines 3-4 should be changed to --computing a reduction factor based on aggregate over utilization of a processor.--

Claim 10, line 1 states, "The method of claim 6 wherein computer comprises..." This should be changed to --The method of claim 6 wherein computing comprises...--

20 Claim 27, line 2 states, "each supported reduction factor." There is no antecedent basis for "reduction factor." Therefore, claim 27, line 2 should be changed to --each supported drop factor.--

Claim 27, line 1 states, "a cylic buffer..." As with the specification, it is believed applicant intended to use the word cyclic instead of "cylic." Therefore, line 1 of claim 27 should be changed from "a cylic buffer" to --a cyclic buffer--.

Appropriate correction is required.

5

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

10

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

15

Claims 6, 10, 18, and 22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

20

Claims 6 and 18 disclose the "computing a reduction factor..." It is not clear from the claim or specification how one of ordinary skill in the art would use applicant's invention, specifically the "reduction factor" once it's been computed. As read on page 7, lines 12-13 applicant defines the "reduction factor" as an equation, but at no other point does applicant explain or even imply how one of ordinary skill in the art would use the "reduction factor" in applicant's invention. Therefore, applicant's invention with respect to the "reduction factor" fails to meet the enablement requirement.

Claims 10 and 22 are dependent on claims 6 and 18 and therefore, are rejected for the same reasons as claims 6 and 18.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

- 5       The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6, 10, 18, 22, and 27 are rejected under 35 U.S.C. 112, second  
10   paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6 and 18 disclose the "computing a reduction factor..." It is unclear what applicant's invention is by claiming the "reduction factor" since there is no post solution  
15   activity using the "reduction factor." That is to say, applicant appears to be merely claiming a computed value and not further claiming its use with regard to applicant's invention. Since applicant does not clearly and distinctly point out a use for the "reduction factor," applicant, in essence, has claimed all uses for the "reduction factor." This fact alone renders the claims vague and indefinite for claiming all possible uses,  
20   known and unknown, for the "reduction factor."

Claims 10 and 22 are dependent on claims 6 and 18 and therefore, are rejected for the same reasons as claims 6 and 18.

Claim 27 recites the limitation "each supported drop factor" in line 2. There is  
25   insufficient antecedent basis for this limitation in the claim. Claim 26, line 3 (from which

claim 27 depends) only discloses a single drop factor, "a drop factor." Therefore, "each... drop factor" lacks antecedent basis.

***Claim Rejections - 35 USC § 102***

5           The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

10           (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

15           Claims 1, 7, 8, 11-13, 19, 20, 23, and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Aimoto (U.S. Patent 6,570,876 B1).

20           Regarding claim 1, Aimoto discloses, "a method comprising: classifying an incoming packet into one of a plurality of flows (col. 1, lines 47-60); determining an estimate of a load of the plurality of flows on a scarce resource (col. 1, lines 61-63 where the buffer memory is directly linked to scarce resources, such as bandwidth as indicated in col. 10, lines 45-48); and implementing a drop policy for at least one flow when the estimate exceeds a predicted threshold (col. 1, lines 61-67)."

25           Regarding claim 13, Aimoto discloses, "a computer readable storage media containing executable computer program instructions (col. 6, lines 59-64 where the

algorithm for the transmission priority controlled by the management unit is a program  
executing instructions) which when executed cause a digital processing system to  
perform a method comprising: classifying an incoming packet into one of a plurality of  
flows (col. 1, lines 47-60); determining an estimate of a load of the plurality of flows on a  
5 scarce resource (col. 1, lines 61-63 where the memory capacity is a scarce resource);  
and implementing a drop policy for at least one flow when the estimate exceeds a  
predicted threshold (col. 1, lines 61-67)."

Regarding claims 7 and 19, Aimoto discloses the method and computer program  
10 of claims 1 and 13 respectively. Aimoto further discloses, "accessing a location in a drop  
buffer (col. 1, lines 61-67); dropping a current packet if the location has a first value (col.  
1, lines 61-67); serving the current packet if the location has a second value (col. 1,  
lines 59-60); and advancing a buffer pointer to point to a next buffer location (col. 1,  
lines 61-67 whereby stating "packets with higher discard priority" means that these  
15 packets are identified and discarded and it is inherent in a buffer to use pointers as a  
means of identifying location of packets)."

Regarding claims 8 and 20, Aimoto discloses the method and computer program  
of claims 1 and 13 respectively. Aimoto further discloses, "wherein the drop policy is  
20 established on a flow by flow basis (col. 1, lines 61-67 where each queue represents a  
flow and each queue is dealt with one at a time)."

Regarding claims 11 and 23, Aimoto discloses the method and computer program of claims 1 and 13 respectively. Aimoto further discloses, "decreasing the predicted threshold if the scarce resource is over utilized when the load is equal to the predicted threshold (col. 10, lines 45-48 where the bandwidth of the system); and  
5 increasing the predicted threshold if the scarce resource is under utilized at the predicted threshold (col. 10, lines 59-62)."

Regarding claims 12 and 24, Aimoto discloses the method and computer program of claims 11 and 23 respectively. Aimoto further discloses, "wherein each  
10 decrease has a greater absolute value than each increase (figure 8, elements 108, 114, and 120 where the decrease (bandwidth) must be bigger than the increase (packet length, LNG) because if the packet length were larger than the bandwidth, then the packet would not be allowed to transmit because the bandwidth could not accommodate the packet, therefore the decrease must be larger than the increase)."

15

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

20

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

25



Claims 2, 14, and 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aimoto in view of Veres et al. (U.S. Patent 6,614,790 B1).

Regarding claims 2 and 14, Aimoto discloses the method of claim 1 and the  
5 computer program of claim 13. However, Aimoto lacks what Veres discloses,  
“aggregating a cost estimate of all packets within a flow to generate a flow load estimate  
for each flow (col. 4, lines 51-53 and col. 6, claim 1, lines 28-32); and summing the  
individual flow load estimates to yield a total load estimate (col. 6, claim 1, lines 28-32).”  
It would have been obvious to one with ordinary skill in the art at the time of invention to  
10 have the aggregating of a cost estimate and summing to a total load estimate for the  
purpose of determining the network load capacity. The motivation for determining the  
network load capacity is so that quality of service requirements for different flows can be  
guaranteed (Veres, col. 4, lines 55-57).

15 Regarding claim 25, Aimoto discloses, “an apparatus comprising: a network input  
interface (figure 1, element 2); and a processor coupled to the input interface and  
having a capacity (figure 1, element 5 where all processors have a capacity).”

However, Aimoto lacks what Veres discloses, “the processor to implement a drop  
policy at the input interface when aggregate utilization of the processor by a plurality of  
20 flows exceeds a threshold (col. 4, lines 51-60 and col. 6, claim 1, lines 28-32 where in  
col. 4 the drop policy is equivalent to the denying of the request).”

It would have been obvious to one with ordinary skill in the art at the time of invention to include a drop policy for the purpose of controlling the network load capacity. The motivation for controlling the network load capacity is so that quality of service requirements for different flows can be guaranteed and the network not  
5 congested (Veres, col. 4, lines 55-57).

Regarding claim 26, Aimoto and Veres disclose the apparatus of claim 25. However, Veres lacks what Aimoto further discloses, "a memory coupled to the processor to store a drop buffer, the drop buffer populated to simulate randomization of  
10 drop events based on a drop factor (figure 1, element 3; col. 1, lines 47-67)." It would have been obvious to one with ordinary skill in the art to include the memory for the same reasons and motivation as in claim 25.

For the purpose of the rejection of claim 27, it should be noted that have a single  
15 drop factor, as in claim 26, versus a plurality of drop factors, as in claim 27, would have been obvious to one of ordinary skill in the art. Thusly, the rejection for on drop factor can be applied to a plurality of drop factors.

Regarding claim 27, Aimoto and Veres disclose the apparatus of claim 26. However, Veres lacks what Aimoto further discloses, "wherein the memory stores a  
20 cyclic buffer corresponding to each supported drop factor (col. 11, lines 5-7 whereby cycling through the buffers, a cyclic buffer is in essence created)." It would have been

obvious to one with ordinary skill in the art to include the cyclic buffer in the memory for the same reasons and motivation as in claim 26.

Regarding claim 28, Aimoto and Veres disclose the apparatus of claim 25.

5 However, Veres lacks what Aimoto further discloses, "wherein the processor implements a packet to flow classification algorithm to group incoming packets into flows (col. 1, lines 47-67 where it is strongly implied the classification is done through a classification algorithm)." It would have been obvious to one with ordinary skill in the art to include the flow classification algorithm for the same reasons and motivation as in  
10 claim 25.

Regarding claim 29, Aimoto and Veres disclose the apparatus of claim 25.

However, Veres lacks what Aimoto further discloses, "wherein the threshold is approximately equal to the capacity (col. 1, lines 47-67 where by the very nature of the  
15 technology the threshold value will be approximately equal to the capacity because if it weren't then the remaining capacity would be wasted and an objective of any system is to minimize waste of resources, thus having the threshold as close to the capacity as possible is a benefit to the system)." It would have been obvious to one with ordinary skill in the art to have the threshold value approximately equal to the capacity for the  
20 same reasons and motivation as in claim 25.

Claims 3-5 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aimoto in view of Choudhury et al. (U.S. Patent 6,092,115).

Regarding claims 3 and 15, Aimoto discloses the method of claim 1 and the  
5 computer program of claim 13. However, Aimoto lacks what Choudhury discloses,  
“allocating a portion of the scarce resource to each flow of an expected plurality of flows  
(col. 3, lines 3-7 where it is strongly suggested that each buffer is allocated a given  
amount of bandwidth/capacity).” It would have been obvious to one with ordinary skill in  
the art at the time of invention to allocate a portion of the scarce resource to each flow  
10 for the purpose of ensuring that all flows share a portion of the resource for their use  
(Choudhury, col. 3, lines 1-3). The motivation for ensuring that all flows have a portion  
of the resource for their use is to prevent a single flow, which may have a higher priority  
than all the other flows, from monopolizing the resource and thus preventing other flows  
from using the resource.

15

Regarding claims 4 and 16, Aimoto discloses the method of claim 3 and the  
computer program of claim 15. However, Aimoto lacks what Choudhury further  
discloses, “identifying which flows of the plurality of flows exceeds their allocation (col.  
3, lines 3-7).” It would have been obvious to one with ordinary skill in the art to include  
20 the identification of flows exceeding their allocation for the same reasons and motivation  
as in claims 3 and 15.

Regarding claims 5 and 17, Aimoto discloses the method of claim 4 and the computer program of claim 16. However, Aimoto lacks what Choudhury further discloses, "distributing excess capacity from flows that do not exceed their allocation to those flows that exceed their allocation (col. 3, lines 3-7)." It would have been obvious to one with ordinary skill in the art to include the distributing of excess capacity for the same reasons and motivation as in claims 4 and 16.


Claims 9 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aimoto in view of Rodriguez-Moral (U.S. Patent 6,260,072 B1).

Regarding claims 9 and 21, Aimoto discloses the method of claim 1 and the computer program of claim 13. However, Aimoto lacks what Rodriguez-Moral discloses, "generating a cost factor for an incoming packet based on at least one of packet type and packet length (col. 4, lines 66-col. 5, lines 1-3 where the cost is based on a type of service for each link and thus each packet)." It would have been obvious to one with ordinary skill in the art at the time of invention to include a cost factor for a packet for the purpose of determining current utilization of a link (Rodriguez-Moral, col. 6, lines 8-11). The motivation for determining a utilization of a link is to ascertain the current state of the network or link and take appropriate action such as congestion/flow control.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Kading whose telephone number is (571) 272-3070. The examiner can normally be reached on M-F: 8:30AM-5PM.

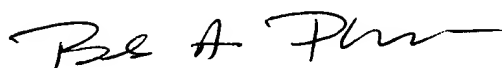
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

5 Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should  
10 you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Joshua Kading  
Examiner  
Art Unit 2661

December 14, 2004

15



**BOB PHUNKULH  
PRIMARY EXAMINER**